

DISTRIBUTION, CONSERVATION AND IDENTIFICATION OF *Strobilanthes* sp. IN SRI LANKA

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Strobilanthes is the most species-rich genus (The name 'Nelu' is applied to the whole genus) coming under Family *Acanthaceae* which was first described by Blume (1826) from specimens collected in West Java. This is one of the largest genera in the flora of Sri Lanka and one of the most interesting. *Strobilanthes* is widely distributed over tropical south and south east Asia and individual species are restricted to isolated islands. 31 species have been reported in Sri Lanka and out of them 26 species are endemic. Shrubs of the genus *Strobilanthes* dominate the montane forest understory in Sri Lanka.

The species of *Strobilanthes* range in growth habit from short perennial herbs to densely branched, erect shrubs and many species are reported to be plietesial; plants which grow for several years before flowering, setting seed and dying. Some Nelu species are known only from collections made several years ago and they may have become already extinct as a result of their habitats being lost to agriculture. According to the Red List of 2012, out of the total of 21 threatened *Strobilanthes* species, 1 is listed as Extinct (endemic), 6 are listed as Critically Endangered 'Possibly Extinct' (of this 5 are endemic), five are listed as Critically Endangered (all are endemic); eight are listed as Endangered (all are endemic); and one is listed as Vulnerable (endemic). Species delimitation remains problematic, essentially because many species are poorly known and rarely collected, mainly because of their seasonal flowering pattern. Nevertheless, new species have been described in the past decade and it is possible that others still remain to be discovered. There are some more varieties under few of those species. Also further taxonomic reviews may result in discovering of new species in future. Further, differentiating indistinct anatomical differences between closely related taxa needs highly trained taxonomists.

In the current study specimens of 15 *Strobilanthes* species were collected from the different locations of the island for both preparation of herbarium samples and extraction of DNA. Distribution maps were prepared using Arcview GIS. Herbarium samples were prepared and deposited in the national herbarium, Peradeniya. We used DNA barcoding for identification of 15 Nelu species present in Sri Lanka. Two universally accepted barcoding regions, *rbcl* and *trnH-psbA* were used for discrimination of species.

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A CTAB based extraction protocol was optimized to acquire good quality DNA from *Nelu* species rich in phenols and other secondary metabolites including indigo, those possibly affect quality and quantity of extracted DNA. PCR was done with high-fidelity Taq polymerase and amplified regions were gel-purified and sequenced from both directions. Cleaned DNA sequences were aligned with Clustal X program and the phylogenetic analysis was done with PHYLIP program. Our results showed that the DNA barcoding technology can effectively be used for discrimination of *Nelu* species in Sri Lanka. DNA barcoding together with morphological characterization can be used to resolve the phylogeny of the Genus *Strobilanthes*.